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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,713	10/17/2003	Michelle M. Hanna	2072.0010006	9587
26111 7590 07/26/2007 STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER KIM, YOUNG J	
			ART UNIT 1637	PAPER NUMBER
			MAIL DATE 07/26/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/686,713

Applicant(s)

HANNA, MICHELLE M.

Examiner

Young J. Kim

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 136, 137 and 139-149 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 136, 137 and 139-149 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 29, 2007 has been entered.

Preliminary Remark

Claims 1-135 and 138 are canceled.

Claims 136, 137, and 139-149 are pending and are under prosecution herein.

Claim Rejections - 35 USC § 112

The rejection of claim 136, 137, 145, and 146 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter, made in the Office Action mailed on November 28, 2006 is withdrawn in view of the Amendment received on May 29, 2007.

Rejection, New Grounds

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 136, 137, and 139-149 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 136 recites the phrase, “oligonucleotide transcript without substantially translocating from the polymerase binding site.” There is insufficient antecedent basis for the term, “the” polymerase binding site, and it cannot be determined where said binding site is located (initiator or template).

In addition, the method is drawn to the detection of the presence of a target molecule, yet the steps of the method only employs a nucleic acid template. Therefore, it is unclear how the target molecule is detected using a template nucleic acid. Clarification is required.

Claim 142 recites the phrase, “said nucleic acid template comprises said target molecule and a target site probe specific for a region on said target molecule.” It is unclear how the template comprises a target molecule and a target site probe. It appears that this is a typographical error, and for the purpose of prosecution, it is assumed that the target molecule of the recited character is incubated with a target site probe.

Claims 137, 139, and 140-149 are indefinite by way of their dependency on claim 136.

Claim Rejections - 35 USC § 102

The rejection of claim 138 under 35 U.S.C. 102(b) as being anticipated by Sasaki et al. (PNAS USA, March 1998, vol. 95, pages 3455-3460), made in the Office Action mailed on November 28, 2006 is withdrawn in view of the Amendment received on November 28, 2006, canceling the rejected claim.

The rejection of claim 138 under 35 U.S.C. 102(b) as being anticipated by Daube et al. (PNAS USA, September 1994, vol. 91, pages 9539-9543) as evidenced by Daube (Biochemistry, 1994, vol. 33, pages 340-347, herein “Daube-2”), made in the Office Action mailed on November

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28, 2006 is withdrawn in view of the Amendment received on November 28, 2006, canceling the rejected claim.

Rejection, Maintained

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The rejection of claims 136, 137, 140, and 145-149 under 35 U.S.C. 102(b) as being anticipated by Sasaki et al. (PNAS USA, March 1998, vol. 95, pages 3455-3460), made in the Office Action mailed on November 28, 2006 is maintained for the reasons already of record.

Applicants' arguments presented in the Amendment received on May 29, 2007 have been fully noted, but they are not found persuasive for the reasons set forth in the, "Response to Arguments," section.

The Rejection:

Sasaki et al. disclose a transcriptional sequencing method, said method comprising the steps:

a) synthesizing multiple copies of detectable oligonucleotides through abortive reiterative synthesis on a nucleic acid template (accomplished by a nucleic acid template comprising a T7 promoter sequence T3 promoter sequence and RNA polymerase; see Figure 4 on page 3457, wherein the abortive reaction is achieved by incorporation of four kinds of dye-3' dNTPs);

b) detecting said oligonucleotide, thereby determining the sequence (or presence) of said target molecule (page 3457, 2nd column, Figure 4 description), thereby clearly anticipating claim 136.

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With regard to claim 137, the artisans employ RNA transcription on a DNA template comprising promoter sequences (page 3455, 2nd column, bottom paragraph; page 3456, 1st column bottom paragraph through 2nd column, 1st paragraph).

With regard to claim 138, the method involves the incubation of DNA template with an initiator (primers comprising T7 promoter sequence and T3 promoter sequence), followed by the incubation with RNA polymerase (see Figure 4), followed by the detection of the synthesized multiple reiterative oligonucleotide transcripts (by sequencing).

With regard to claim 140, the transcript termination is achieved through incorporation of a nucleotide analog, dye-3' dNTPs (fluorescent dye terminators; *see* page 3457, 1st column, bottom paragraph).

With regard to claim 145, the target molecule is a nucleic acid (page 3456, 2nd column, 1st paragraph).

With regard to claim 147, the nucleic acid template comprises a structure which allows the abortive reiterative synthesis to occur. Since the specification does not have a specific definition of what is considered to be an "abortive promoter cassette," and since the claims do not recite a structure of such cassette, based on a reasonable broadest interpretation of the claim, any structure which comprises promoter sequence that is capable of effecting abortive reiterative synthesis, is deemed to meet this limitation.

Therefore, Sasaki et al. clearly anticipate the invention as claimed.

Response to Arguments:

Applicants' argument stems from the amendment made to the sole independent claim 136, wherein the claim is amended to recite that the RNA polymerase releases an oligonucleotide

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transcript without substantially translocating from the polymerase binding site. (page 8, 1st paragraph, Response).

Applicants' statement is noted, but is not found to be persuasive as Applicants have not provided a sufficient reason as to why the method disclosed by Sasaki et al. does not anticipate the invention as claimed.

Specifically, the RNA polymerase binding site is employed by Sasaki et al., in the generating the oligonucleotide transcript. Further, it is clear that the template comprising the RNA polymerase binding site is employed to generate multiple transcripts which are terminated. The fact that multiple transcripts are produced evidences that the RNA polymerase is binding to the RNA promoter sequence of the template disclosed by Sasaki et al., in a repeated fashion. Whether or not the RNA polymerase generates said multiple transcripts without "substantially" translocating from its promoter site is not explicit in the artisan's disclosure, but neither proved by Applicants.

In addition, the oligonucleotide transcripts generated by Applicants' method is disclosed as being as long as 100 nucleotides or greater in length, the length of which is similar to the transcripts produced by Sasaki et al. (see page 3459 and Table 1 on page 3457).

Therefore, it is asserted that RNA polymerase employed by Sasaki et al. releases the oligonucleotide transcript without substantially translocating from the polymerase binding site.

"As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith (In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972))...., Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicants to come forward with evidence establishing an unobvious difference between the claimed

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product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983)).

Similarly, the Office has clearly shifted the burden to Applicants to distinguish the process of the prior art and that of the instant application, to which Applicants merely asserted without any evidence so as to shift the burden back to the Office.

The rejection is proper and thus maintained.

The rejection of claims 136, 137, 139, 141-145, and 147-150 under 35 U.S.C. 102(b) as being anticipated by Daube et al. (PNAS USA, September 1994, vol. 91, pages 9539-9543) as evidenced by Daube (Biochemistry, 1994, vol. 33, pages 340-347, herein "Daube-2"), made in the Office Action mailed on November 28, 2006 is maintained for the reasons already of record.

Applicants' arguments presented in the Amendment received on May 29, 2007 have been fully considered but they are not found persuasive for the reasons set forth in the, "Response to Arguments" section.

The Rejection:

Daube et al. disclose a method of detecting the presence of a target molecule from a plasmid, pAR1707 (thus a biological sample; *see* page 9540, 1st column, 2nd paragraph), wherein the artisans conduct the step of ligating a transcriptional bubble complex to the target nucleic acid (see Figure 1 on page 9540), followed by the generation of the multiple abortive reiterative transcripts (page 9540, 2nd column, 2nd paragraph), followed by their detection (page 9540, 2nd column, 2nd paragraph, detection by gel electrophoresis), thereby clearly anticipating claim 136, 144, 145, 147, 148, and 149.

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With regard to claim 137, the transcription is an RNA transcription on a DNA template (page 9540, 1st column, see 180-bp DNA fragment being employed).

With regard to claims 138, 141, and 142, RNA primer is employed (thus, an initiator; see Figure 1E on page 9540), and the termination of the transcription products by the termination sequence located downstream from the initiation sequence (Figure 2 on page 9541).

With regard to claim 139, Daube et al. refers to the method disclosed by Daube-2, wherein in the disclosure of Daube-2, on page 342, the step of nucleotide-deprivation is employed (deprivation of GTP, see page 342, 2nd column, 2nd paragraph).

Therefore, the invention as claimed is anticipated by Daube et al. as evidenced by Daube-2.

Response to Arguments:

Applicants contend that Daube et al. describe transcription of 226 bp runoff fragment and a 166 nucleotide product corresponding to RNA terminating at the T7T3 terminator, and that these are products of a processive transcription reaction and not the product of an abortive, reiterative process as claimed (page 8, bottom paragraph, Response).

Applicants' argument is noted, but is not found persuasive.

All that the abortive transcription process requires (as recited in the claims) is that the transcription process terminates at a certain position, and the transcription process begin again, wherein the RNA polymerase does not substantially translocate from the RNA polymerase binding site.

In addition, the transcription process disclosed by Daube et al. are reiterative, as the gel-run clearly shows that multiple products were generated from the bubble complex disclosed by Daube et al. (Figure 2).

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In addition, the artisans disclose that, “[w]hen the elongation rate catalyzed by the T7 RNA polymerase was reduced by decreasing the concentration of NTPs to 0.1 mM..., a slight increase in the amount of product 2 was observed.” (page 342, 2nd column, 2nd paragraph), product 2 of which is non-displaced and product 3 being displaced, clearly evidencing that reiterative transcription process was being conducted.

In addition, the abortive transcription process allows for the termination of the transcription process via use of a terminating sequence (see applicants’ claim 141).

Clearly, the method disclosed by Daube et al. and that of the instant claims highly similar if not identical.

Therefore, the rejection is maintained.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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The rejection of claims 136-147 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-34 of U.S. Patent No. 7,045,319, made in the Office Action mailed on November 28, 2006 is maintained for the reasons of record.

Applicants' request to hold the rejection in abeyance is noted (see page 9, 3rd paragraph, Response).

However, the instant application contains multiple substantive rejections over prior art and thus, rejection is maintained.

The Rejection:

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the issued patents are narrower species of method which renders the broader claims of the instant application in a genus-species anticipatory way.

The provisional rejection of claims 136-147 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 26, 27, 103, 112, and 136-139 of copending Application No. 10/488,971 (herein, the '971 application), made in the Office Action mailed on November 28, 2006 is maintained for the reasons of record.

Applicants' request to hold the rejection in abeyance is noted (see page 9, 3rd paragraph, Response).

However, the instant application contains multiple substantive rejections over prior art and thus, rejection is maintained.

The Rejection:

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Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the '971 application are narrower species of method which renders the broader claims of the instant application in a genus-species anticipatory way.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The provisional rejection of claims 136-147 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-22, 32-34, and 44 of copending Application No. 10/976,240 (herein, the '240 application), made in the Office Action mailed on November 28, 2006 is maintained for the reasons of record.

Applicants' request to hold the rejection in abeyance is noted (see page 9, 3rd paragraph, Response).

However, the instant application contains multiple substantive rejections over prior art and thus, rejection is maintained.

The Rejection:

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application and the claims of the '240 application require the same method of reiteratively synthesizing oligonucleotide transcripts which are terminated, as well as employing an abortive promoter cassettes.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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The provisional rejection of claims 136-147 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-27 of copending Application No. 10/425,037, made in the Office Action mailed on November 28, 2006 is maintained for the reasons of record.

Applicants' request to hold the rejection in abeyance is noted (see page 9, 3rd paragraph, Response).

However, the instant application contains multiple substantive rejections over prior art and thus, rejection is maintained.

The Rejection:

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims of the instant application and the claims of the '240 application require the same method of reiteratively synthesizing oligonucleotide transcripts which are terminated, as well as employing an abortive promoter cassettes.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The provisional rejection of claims 136-147 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over pending (and/or elected) claims of copending Application No. 10/602,045; 10/602,045; and 10/607,136, made in the Office Action mailed on November 28, 2006 is maintained for the reasons of record.

Applicants' request to hold the rejection in abeyance is noted (see page 9, 3rd paragraph, Response).

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However, the instant application contains multiple substantive rejections over prior art and thus, rejection is maintained.

With regard to Applicants' request for clarification of Application no. 10/600,045, the citation contained a typographical error. The correct application no. should be 10/602,045.

The Rejection:

Although the conflicting claims are not identical, they are not patentably distinct from each other because as reasons already set forth above.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

No claims are allowed.

Inquiries

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Young J. Kim whose telephone number is (571) 272-0785. The Examiner is on flex-time schedule and can best be reached from 8:30 a.m. to 4:30 p.m (M-W and F). The Examiner can also be reached via e-mail to Young.Kim@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Dr. Gary Benzion, can be reached at (571) 272-0782.

Papers related to this application may be submitted to Art Unit 1637 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant does submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED,

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so as to avoid the processing of duplicate papers in the Office. All official documents must be sent to the Official Tech Center Fax number: (571) 273-8300. For Unofficial documents, faxes can be sent directly to the Examiner at (571) 273-0785. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Young J. Kim/
Primary Examiner
Art Unit 1637
7/23/07

YJK